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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LANGEL, WAYNE A

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 02/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

788222

Applicant(s)

Kim et al

Examiner

Langel

Group Art Unit

1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 1-9-03

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-6 and 9-12 is/are rejected.

☒ Claim(s) 7 and 8 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

Claims 1-8 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to what would constitute "large molecular weight organic materials". That is, it is indefinite as to where the line of demarcation would be between "large molecular weight" and "small molecular weight". In claim 1, line 5, and in claim 12, line 7, it is indefinite as to whether "the organic materials" would necessarily be the "large molecular weight organic materials" as recited in line 1 of claims 1 and 12.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 9-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujimura et al. '858. Fujimura et al. '858 discloses a method for treating wastes by two-stage gasification, wherein the wastes are gasified in a fluidized bed reactor at a low temperature, and then the gaseous material and

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char produced in the fluidized bed reactor are introduced into a high-temperature combustor, and gasified at a high temperature. After water scrubbing and a CO conversion reaction, the gas is separated into H₂ and residual gas. The residual gas is then supplied to the fluidized bed reactor as a fluidizing gas. (See the Abstract and column 4, line 58 to column 9, line 16.)

Fujimura et al. '858 teach at column 16, lines 35-38 that after hydrogen gas is separated from the produced gas from the gas purification step, the residual acid gas mainly composed of CO₂ is reused in the fluidized bed reactor as a fluidizing gas.

Fujimura et al. '858 also disclose in the paragraph bridging columns 15 and 16 that the refined gas from the CO conversion step 118, which is composed of H₂, CO₂, H₂O and a small amount of CO, is separated into high purity H₂ and residual gas mainly composed of CO₂ and CO by either a pressure swing absorption method or a hydrogen gas separation membrane method. The residual gas is compressed by the circulating gas compressor 122, and then supplied to the fluidized bed reactor 110 together with oxygen gas. The difference between the process disclosed by Fujimura et al. '858, and that recited in applicant's claims, is that Fujimura et al. do not specifically disclose that the residual gas contains hydrogen, as well as carbon monoxide. It would be prima facie obvious to operate the process of Fujimura et al. '858 under conditions such that the residual gas disclosed

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at column 16, line 1 would contain both carbon monoxide and hydrogen, since one of ordinary skill in the art would not desire 100% efficiency for the hydrogen separation step disclosed in the sentence bridging columns 15 and 16, for both economic and technical reasons. In this regard, applicant's claims do not require that more than miniscule amounts of carbon monoxide and hydrogen gas be recycled into the gasification reactor.

Regarding claims 9-11, Fujimura et al. '858 teach at column 4, lines 57-64 that coal and waste oil may be among the wastes which can be treated according to the process.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimura et al. '858 as applied to claim 1 above, and further in view of either Clawson et al. or Hershkowitz et al. Clawson et al. and Hershkowitz et al. both disclose hydrocarbon gasification processes, wherein a mixture of oxygen-containing gas and unburned fuel is directed tangentially into a partial oxidation reaction zone. (See the Abstract of each reference.) It would be prima facie obvious from either Clawson et al. or Hershkowitz et al. to modify the process of Fujimura et al. '858 by supplying the oxygen into the gasification reactor through at least two nozzles arranged on the wall of the reactor at a tangential direction, since Hershkowitz et al. and Clawson et al. both disclose tangential injection of oxygen into a gasifier, and one of ordinary skill in the art

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would appreciate that the oxygen required for the gasifier of Fujimura et al. '858 could be injected in any known or conventional manner, such as the tangential injection of either Clawson et al. or Hershkowitz et al.

Claims 7 and 8 are objected to as based on a rejected parent claim, and would be allowed if written in independent form.

Fujimura et al. '355, White '677 and White '227 are made of record for disclosing methods for producing hydrogen by gasifying organic waste materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 305-7718.

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER

Serial No. 09/788,222

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

February 20, 2003